

Claims

- [c1] 1. A turbine comprising:
 - an oil deflector including at least one set of seal rings;
 - and
 - a shaft including an annular step, the step having a circumferential surface in proximity to the seal rings and a side surface extending radially from a central portion of the shaft and defining a groove positioned radially underneath the circumferential surface.
- [c2] 2. A turbine according to claim 1, wherein the step further includes another side surface extending radially from the central portion of the shaft, the groove extending axially toward the another side surface.
- [c3] 3. A turbine according to claim 2, wherein the shaft comprises an intermediate pressure rotary shaft.
- [c4] 4. A turbine according to claim 1, wherein the shaft further includes a thrust bearing enclosure which extends radially from the central portion of the shaft, the step projecting axially away from the thrust bearing enclosure.

- [c5] 5. A turbine according to claim 4, wherein the shaft comprises a high pressure rotary shaft.
- [c6] 6. A turbine according to claim 1, wherein the circumferential surface of the step defines an oil slinger pocket.
- [c7] 7. A rotary shaft of a turbine, the rotary shaft comprising:
 - an axially extending central portion; and
 - an annular step projecting radially from the central portion, the step having a circumferential surface and a radially extending side surface, the side surface defining a groove positioned radially underneath the circumferential surface.
- [c8] 8. A rotary shaft according to claim 7, wherein the step further includes another side surface extending radially from the central portion of the shaft, the groove extending axially toward the another side surface.
- [c9] 9. A rotary shaft according to claim 8, wherein the shaft comprises an intermediate pressure rotary shaft.
- [c10] 10. A rotary shaft according to claim 7, wherein the shaft further includes a thrust bearing enclosure extending radially from the central portion of the shaft, the step projecting axially away from the thrust bearing enclosure.

- [c11] 11. A rotary shaft according to claim 10, wherein the shaft comprises a high pressure rotary shaft.
- [c12] 12. A rotary shaft according to claim 7, wherein the circumferential surface of the step defines an oil slinger pocket.
- [c13] 13. A turbine comprising:
 - a first oil deflector including at least one set of seal rings;
 - a second oil deflector including at least one set of seal rings; and
 - a shaft including:
 - a first annular step having a circumferential surface in proximity to the seal rings of the first oil deflector; and
 - a second annular step having a circumferential surface in proximity to the seal rings of the second oil deflector.
- [c14] 14. A turbine according to claim 13, wherein the first annular step includes a radially extending side surface which defines a groove positioned radially underneath the circumferential surface of the first annular step, and the second annular step includes a radially extending side surface which defines a groove positioned radially underneath the circumferential surface of the second annular step.

- [c15] 15. A turbine according to claim 14, wherein the first annular step further includes another radially extending side surface, the groove positioned underneath the circumferential surface of the first annular step extending axially toward the another side surface.
- [c16] 16. A turbine according to claim 14, wherein the shaft further includes a thrust bearing enclosure extending radially from a central portion of the shaft, the second annular step projecting axially away from the thrust bearing enclosure.
- [c17] 17. A turbine according to claim 15, wherein the shaft further includes a thrust bearing enclosure extending radially from a central portion of the shaft, the second annular step projecting axially away from the thrust bearing enclosure.
- [c18] 18. A turbine according to claim 13, wherein at least one of the first and second annular steps includes a radially extending side surface which defines a groove positioned radially underneath the circumferential surface of the at least one first and second annular steps.